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FIG. 1

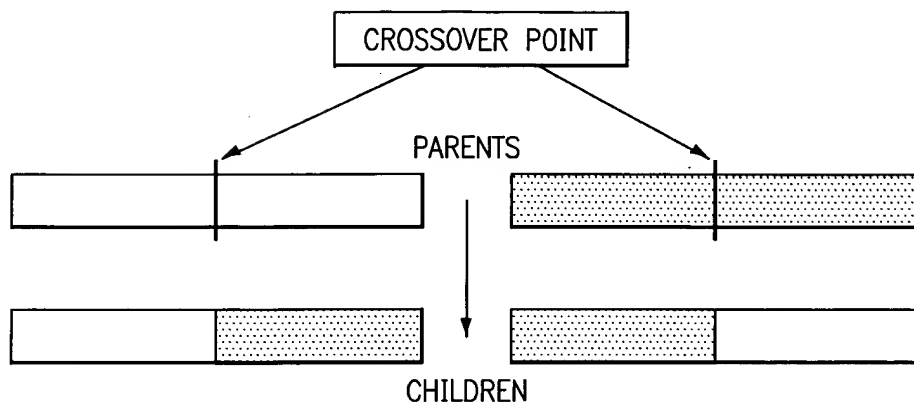


FIG. 2

```
<!ELEMENT GAIndividual (bitString)
<!ELEMENT bitString (#PCDATA)>

<GAIndividual>
  < bitString >0111000011010011</bitString>
</GAIndividual>
```

FIG. 3

```
<!ELEMENT GAIndividual (TSPLeg*)>
<!ELEMENT TSPLeg ( TSPLeg*, PCData)>
```

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# FIG. 4

```
<!ELEMENT GAParams (PopulationSize, GABinaryVariable+, MaxGenerations,
NumVariables, CrossoverType, CrossoverProbability,
MutationProbability, OutputFilename, SelectionType,
MatingPoolChoice, Cmult, DTDName, DTDFilename traditionalProb )>
<!ELEMENT PopulationSize (#PCDATA)>
<!ELEMENT GABinaryVariable (MinBinaryValue, MaxBinaryValue, DivideBy,
VarNodeName, CrossNodeProbability, BinaryProbability)>
<!ELEMENT MinBinaryValue (#PCDATA)>
<!ELEMENT MaxBinaryValue (#PCDATA)>
<!ELEMENT DivideBy (#PCDATA)>
<!ELEMENT VarNodeName (#PCDATA)>
<!ELEMENT CrossNodeProbability (#PCDATA)>
<!ELEMENT BinaryProbability (#PCDATA)>
<!ELEMENT MaxGenerations (#PCDATA)>
<!ELEMENT NumVariables (#PCDATA)>
<!ELEMENT CrossoverType (#PCDATA)>
<!ELEMENT MutationProbability (#PCDATA)>
<!ELEMENT OutputFilename (#PCDATA)>
<!ELEMENT SelectionType (#PCDATA)>
<!ELEMENT MatingPoolChoice (#PCDATA)>
<!ELEMENT Cmult (#PCDATA)>
<!ELEMENT DTDName (#PCDATA)>
<!ELEMENT DTDFilename (#PCDATA)>
<!ELEMENT traditionalProb (#PCDATA)>
```

# FIG. 7

- $f1(x_i) = \sum x_i^2, i = 1..3, -5.12 \leq x_i \leq 5.12$
- $f2(x_1, x_2) = 100 * (x_1^2 - x_2)^2 + (1 - x_1)^2, -2.048 \leq x_i \leq 2.048$
- $f3(x_i) = \sum \text{Integer}(x_i), i = 1..5, -5.12 \leq x_i \leq 5.12$
- $f4(x_i) = \sum i(x_i)^4 + \text{Gauss}(0,1), i = 1..30, -1.28 \leq x_i \leq 1.28$
- $f4(x_i) = .002 + \sum j(1/(j + \sum_i(x_i - a_{ij})^6)), i = 1..2,$   
 $j = 1..25, -65.536 \leq x_i \leq 65.536$

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FIG. 5

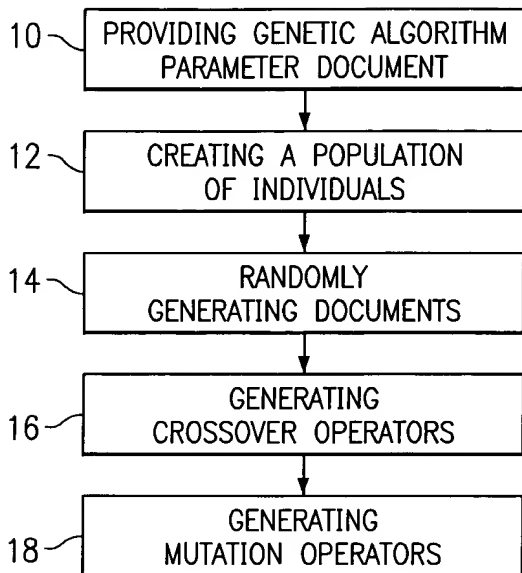


FIG. 6

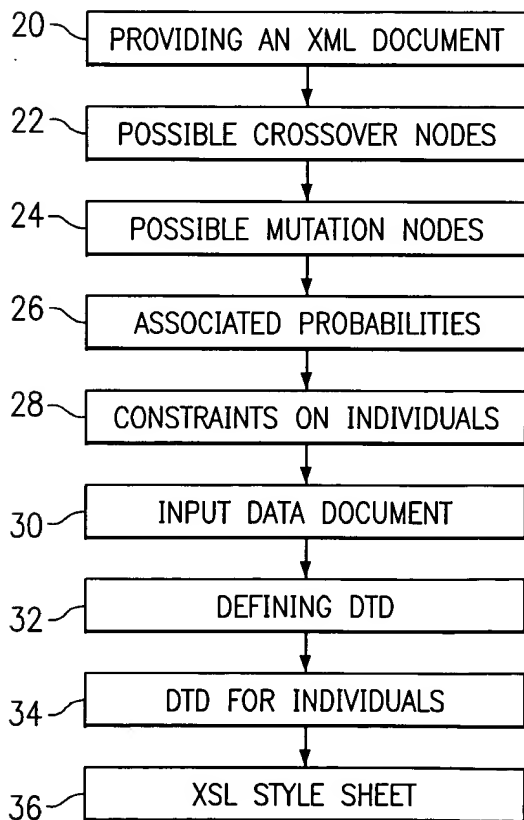


FIG. 12

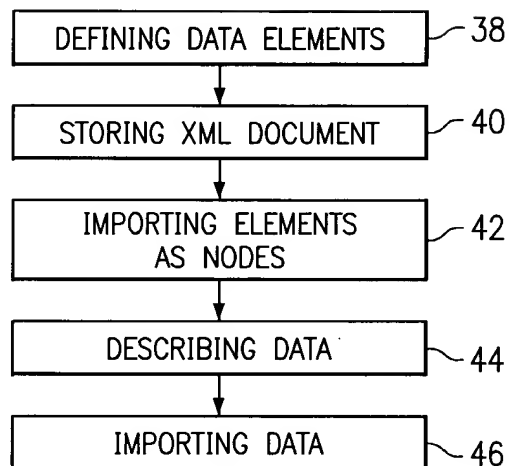


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```
<!DOCTYPE GAParams SYSTEM "GAParams.dtd">
<GAParams>
  <PopulationSize>50</PopulationSize>
  <GABinaryVariable>
    <MinBinaryValue>-512</MinBinaryValue>
    <MaxBinaryValue>511</MaxBinaryValue>
    <DivideBy>100</DivideBy>
    <VarNodeName>xone</VarNodeName>
    <CrossNodeProbability>.2</CrossNodeProbability>
    <BinaryProbability>.50</BinaryProbability>
  </GABinaryVariable>
  <GABinaryVariable>
    <MinBinaryValue>-512</MinBinaryValue>
    <MaxBinaryValue>511</MaxBinaryValue>
    <DivideBy>100</DivideBy>
    <VarNodeName>xtwo</VarNodeName>
    <CrossNodeProbability>.2</CrossNodeProbability>
    <BinaryProbability>.50</BinaryProbability>
  </GABinaryVariable>
  <GABinaryVariable>
    <MinBinaryValue>-512</MinBinaryValue>
    <MaxBinaryValue>511</MaxBinaryValue>
    <DivideBy>100</DivideBy>
    <VarNodeName>xthree</VarNodeName>
    <CrossNodeProbability>.2</CrossNodeProbability>
    <BinaryProbability>.50</BinaryProbability>
  </GABinaryVariable>
  <MaxGenerations>60</MaxGenerations>
  <NumVariables>3</NumVariables>
  <CrossoverType>1</CrossoverType>
  <CrossoverProbability>.60</CrossoverProbability>
  <MutationProbability>.001</MutationProbability>
  <OutputFilename>d1outfile.txt</OutputFilename>
  <SelectionType>0</SelectionType>
  <MatingPoolChoice>0</MatingPoolChoice>
  <Cmult>1.2</Cmult>
  <DTDName>DeJongOneIndividual</DTDName>
  <DTDFileName>DeJongOneIndividual.dtd</DTDFileName>
  <traditionalProb>.0</traditionalProb>
</GAParams>
```

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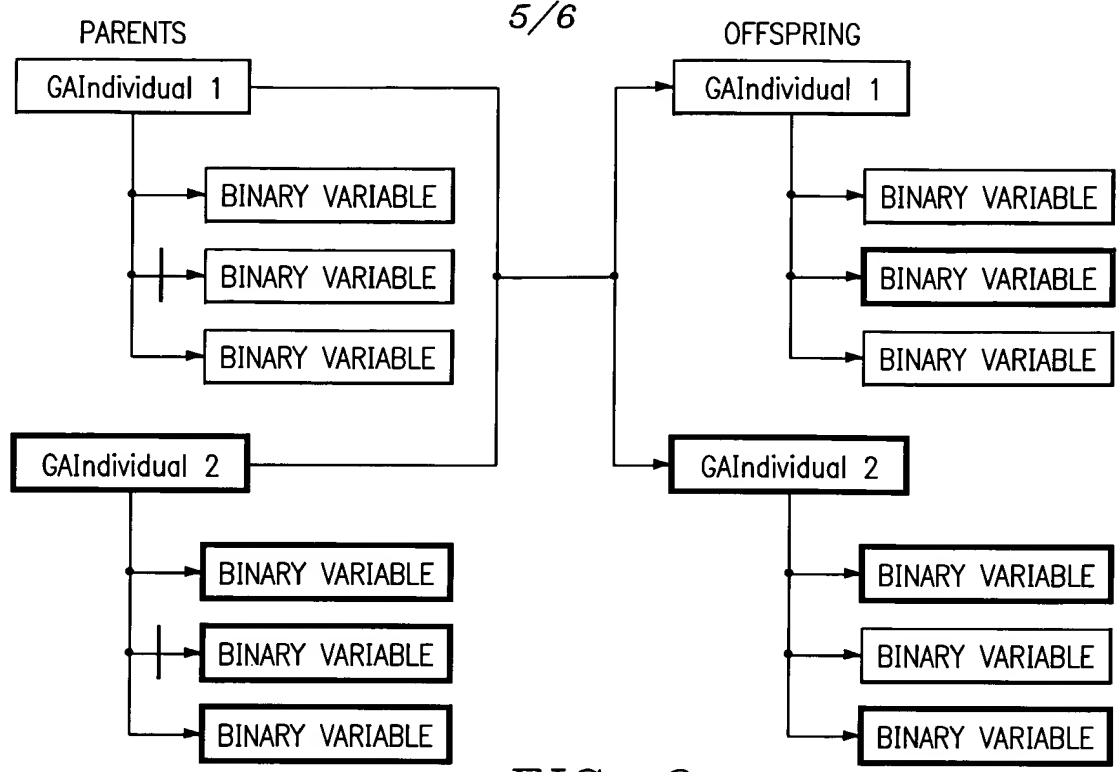


FIG. 9

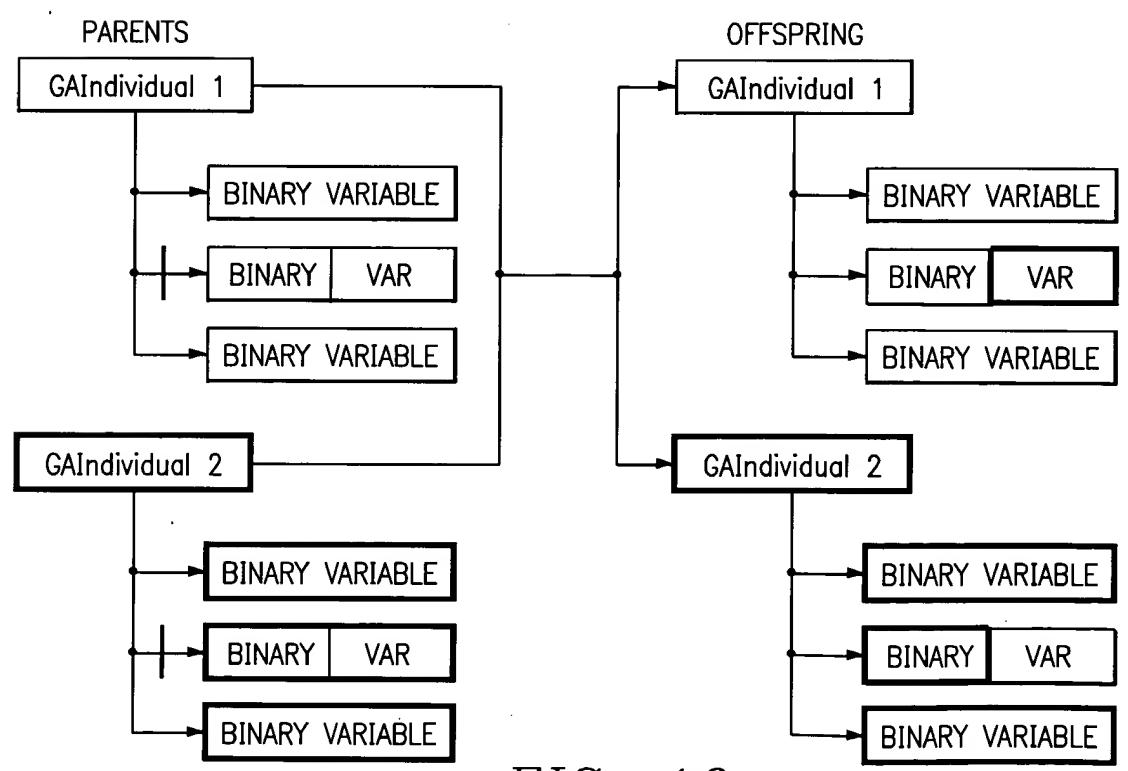


FIG. 10

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FIG. 11

